

Unit Planning Guide: Grade 8 Unit 4 of 5

Unit Title: Geometry	Pacing (Duration of Unit): 20 days
Grade: 8	Buffer Day(s): 5 days

Desired Results

Transfer Goals

Students will be able to independently use their learning to:

1. Make sense of problems and persevere in solving them.
2. **Reason abstractly and quantitatively.**
3. **Construct viable arguments and critique the reasoning of others.**
4. Model with mathematics.
5. **Use appropriate tools strategically.**
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Established Goals (2011 MA Curriculum Frameworks Standards Incorporating the Common Core State Standards)

Standards (Priority Standards in bold):

- 8.G.1: Verify experimentally the properties of rotations, reflections, and translations:
- 8.G.1a: Lines are taken to lines, and line segments to line segments of the same length.
- 8.G.1b: Angles are taken to angles of the same measure.
- 8.G.1c: Parallel lines are taken to parallel lines.
- 8.G.2: Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.**
- 8.G.3: Describe the effects of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.**
- 8.G.4: Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.**
- 8.G.5: Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.
- 8.G.9: Know the formulas for the volumes of cones, cylinders, and spheres, and use them to solve real-world and mathematical problems.

WIDA for English Language Learners

Standard 1: ELLs **communicate** for **Social** and **Instructional** purposes within the school setting

Standard 3: ELLs **communicate** information, ideas and concepts necessary for academic success in the content area of **Mathematics**

In the lesson planning stage, teachers will need to differentiate lessons for ELLs. In order to accomplish this they will need: 1.) this curriculum map, 2.) a list of their ELLs and their proficiency levels, and 3.) appropriate language function expectations and scaffolds or supports.

Meaning (*Mostly assessed through Performance Tasks/Assessments)

Big Ideas:

- How distance and angles behave under transformations.
- Ideas about congruency and similarity to describe and analyze two-dimensional figures.

Essential Questions: (Questions which frame ongoing and important inquiries about the big ideas. They are written for students and used in daily instruction to help engage students in meaningful thinking.)

- How do you relate congruency and similarity to transformations and apply to real world situation?

Acquisition (*Mostly assessed through traditional summative assessments)

Knowledge: Key basic concepts, facts, and key terms (written in phrases) students should be able to recall independently.

Students will know ...

- The difference between similar and congruent two-dimensional figures
- The different types of transformations (dilations, translations, rotations and reflections)
- Facts about sums of interior and exterior angles of a triangle
- Facts about angles that are created when parallel lines are cut by a transversal
- The formulas for the volumes for cones, cylinders and spheres

Key Academic Vocabulary

Similar
Congruent
Converse
Dilation
Reflection
Rotation
Transformation
Translation

Skills: The discrete skills and process students should be able to use independently (Bloom's Level of Learning should be noted in parentheses.)

Students will be skilled at:

- Performing the different types of transformations (dilations, translations, rotations and reflections) with two-dimensional figures
- Recognizing and defining similar and congruent relationships with two-dimensional figures
- Finding the sums of interior and exterior angles of triangles
- Finding the relationship between angles created by a transversal through parallel lines
- Using angle-angle criterion for similarity
- Using the formulas of the volumes for cones, cylinders and spheres to solve real-world problems

